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In the Supreme Court of the United States

OCTOBER TERM, 1977

LUTRELLE F. PARKER, ACTING COMMISSIONER OF PATENTS AND TRADEMARKS, PETITIONER

v.

DALE R. FLOOK

ON WRIT OF CERTIORARI TO THE UNITED STATES COURT OF CUSTOMS AND PATENT APPEALS

REPLY BRIEF FOR THE PETITIONER

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1. Respondent errs in asserting (Br. 7-13) that our argument confuses the standard of non-obviousness prescribed in 35 U.S.C. 103 and the requirement of statutory subject matter under 35 U.S.C. 101. As respondent recognizes, the patent examiner's sole ground for rejection of the claims at issue was that they did not cover statutory subject matter under 35 U.S.C. 101. We do not contend that respondent's particular algorithm for computing updated alarm-limits is not novel or is obvious within the meaning of 35 U.S.C. 102 or 103. We simply contend that the subject matter he

seeks to patent is unpatentable under 35 U.S.C. 101, because it is not an "invent[ion] or discover[y]" within the meaning of that Section.[1]

The plain language of Section 101 requires that the application of a mathematical algorithm involve invention or discovery for it to be patentable. It states that patents may issue only to one who "*invents* or *discovers* any * * * process, machine, manufacture, or composition of matter" (emphasis supplied). This language dates from the original Patent Act of 1790.[2] In none of the subsequent amendments to the patent statute has Congress altered this basic requirement.

Yet respondent would have the courts ignore this explicit language and adopt a new rule that would allow patents to issue to anyone who "[*applies for a patent on*] any * * * process, machine, manufacture, or composition of matter, * * * subject to the conditions and requirements of this title". Congress could have changed the language of Section 101 to broaden the statutory standards of patentability, but it did not; indeed, respondent agrees (Br. 11) that in the 1952 Patent Act revision, Congress intended to codify the existing judicial precedents regarding the standard of patentability.

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[1]We thus put aside, as unresponsive and immaterial, the contention that the test of inventiveness that we urge fails to consider the obviousness of the claimed subject matter "as a whole." We may assume that this is the test appropriate in determining obviousness under 35 U.S.C. 103. But it is not apposite here, where the question is whether the claimed subject matter constitutes the "invent[ion] or discover[y]" of a process under 35 U.S.C. 101.

[2]1 Stat. 109, Section 1. The exact language is quoted in our opening brief, 11 n. 9.

It is true that, by the addition of Section 103 to the 1952 Act, Congress codified the judge-made requirement of non-obviousness over the prior art—which was *one* aspect of the general pre-1952 standard of "invention" that the case law had developed. But enactment of this section did not affect the long-standing rule, grounded in the Patent Clause of the Constitution and applied in such cases as *Funk Brothers Seed Co.* v. *Kalo Inoculant Co.*,[3] that certain classes of subject matter—*e.g.*, scientific principles, phenomena of nature, etc.—are not patentable because they are "the basic tools of scientific and technological work" (*Gottschalk* v. *Benson*, 409 U.S. 63, 67). Indeed, even if a scientific discovery is non-obvious within the meaning of Section 103— like Einstein's theory of relativity—it is not patentable subject matter under Section 101.

In *Gottschalk* v. *Benson*, 409 U.S. 63, this Court reaffirmed the rule of the *Funk* case in a case involving mathematical algorithms, which are the building-blocks of modern computer technology. Benson's claims were rejected under Section 101, not under Section 103; the same analysis requires rejection of Flook's claims for a patent on a mathematical relationship between process-variable values, just as it should apply to all subsequent patent applications claiming unpatentable subject matter.[4]

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[3]333 U.S. 127. This case is discussed extensively in our main brief, pp. 19-20. *Funk* carries forward this rule from a long line of earlier precedents. See, *e.g.*, the cases cited *id.* at 12, n. 10 and accompanying text.

[4]Respondent urges (Br. 15-16) that the claims in *Benson* were unpatentable because they related simply to the pre-existing relationship between two established numbering systems, while his claims are patentable because they do not describe a relationship between pre-existing quantities. But respondent's claims, like Benson's, describe a mathematical formula that has a practical

By denying the instant patent application, the Patent and Trademark Office is carrying out the statutory command that patents be granted only for the "invent[ion] or discover[y]" of patentable subject matter—a command that derives from the constitutional authorization, and its limitation on Congress' power, that patents be granted only to "Inventors" for "Discoveries," and "[t]o promote the Progress of Science and useful Arts" (Article I, Section 8, Clause 8).[5]

2. Respondent further contends (Br. 13-14) that acceptance of petitioner's test for patentable subject matter would preclude the patenting of any invention whose conception preceded its reduction to practice.[6] But again, this argument misconceives the scope of petitioner's

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application. Respondent's formula describes the relationship between the past and present values of a process variable and its predicted future value in a conventional industrial process. That is no less a "pre-existing relationship" than the one involved in *Benson*. Moreover, a holding that Flook's claims are indistinguishable from Benson's would not preclude all possibilities of patenting computer programs. In this case, the patent examiner specifically found that "[t]he only difference between [respondent's] claims and the prior art is in the mathematical formula involved in updating the value of an alarm limit" (App. 26A; see also App. 47A-49A). Flook's claims cover a "method" that consists of a formula for calculating numbers, and it is thus unpatentable under *Benson*, regardless of whether it is embodied in a computer program or accomplished by mental calculation.

[5]See *Graham* v. *John Deere* Co., 383 U.S. 1, 5-6.

[6]This argument is apparently based on the erroneous theory that the application of any idea, once conceived, is necessarily routine and noninventive. See also Brief Amici Curiae for American Patent Law Association and Los Angeles Patent Law Association, pp. 13-17. This theory ignores, for example, the inventiveness of Morse's and Bell's respective forms of apparatus that they devised to carry out their ideas to use laws of nature for a novel and useful purpose. See *Benson, supra*, 409 U.S. at 68-69.

position. A test of inventiveness of implementation is appropriate for claims that are tantamount to claims to mathematical or scientific principles, in light of the policy that patents must not be awarded on claims that preempt basic scientific concepts. *Funk* and *Benson* indicate that this important policy dictates that an "invention" that does no more than apply such a basic principle in a straightforward, conventional manner does not merit a grant of the patent monopoly.[7]

In the present case respondent claims a mathematical formula, the solution of which is conventionally applied to conventional technology. The formula itself is, concededly, unpatentable, but respondent seeks to transform it into a patentable "invention" by the conventional application of its results to monitor existing processes.[8] To require the award of patent monopolies for

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[7]It is argued that *Eibel Process Co.* v. *Minnesota & Ontario Paper Co.*, 261 U.S. 45, is contrary to this principle, and to *Funk*. The patentee in *Eibel* was the first to utilize the force of gravity to speed up the feeding of paper in a paper-making machine. Assuming, *arguendo*, that *Eibel* survived *Funk* and *Benson*, it is inapposite because it did not involve a finding that application of a scientific principle was straightforward or conventional. The Court in fact held that the application was inventive, and not routine at all (*id.* at 55, 60).

[8]Respondent cites no authority, and we know of none, that allows a mathematical formula to be patented simply because its solution may be applied to existing technology. *MacKay Radio & Telegraph Co.* v. *Radio Corp. of America*, 306 U.S. 86, on which amici rely, involved the alleged infringement of one of R.C.A.'s patents for the configuration of radio transmittal antennae. The Court did not decide whether the patent in question was valid, because it found

such claims would create an unwarranted burden for all who use and develop computer software based on mathematical algorithms.

For these reasons, as well as those discussed in our opening brief, the judgment of the Court of Customs and Patent Appeals should be reversed.

Respectfully submitted.

WADE H. MCCREE, JR.
Solicitor General.

APRIL 1978.

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that it was not infringed. On the subject of patentability, the Court stated the rule (quoted in *Benson, supra,* 409 U.S. at 67) that (306 U.S. at 94)—

> a scientific truth, or the mathematical expression of it, is not a patentable invention [though] a novel and useful structure created with the aid of knowledge of scientific truth may be.

It then cast doubt on whether the claimed invention warranted a patent, stating (*ibid.*; emphasis supplied):

> We assume, without deciding the point, that this advance was invention *even though it was achieved by the logical application of a known scientific law* to a familiar type of antenna.